AS 3568—1989

Australian Standard®

Oils for reducing the viscosity of residual bitumen for pavements

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee CH/25, Bitumen and Related Products (for Roadmaking). It was approved on behalf of the Council of Standards Australia on 8 September 1988 and published on 14 April 1989.

The following interests are represented on Committee CH/25:

Australian Asphalt Pavement Association

Australian Institute of Petroleum

Australian Road Research Board

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Institution of Engineers, Australia

National Association of Australian State Road Authorities

This Standard was issued in draft form for comment as DR 86154.

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First published as AS 3568—1989.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY NSW
ISBN 0 7262 5351 0

PREFACE

This Standard was prepared by the Standards Australia Committee on Bitumen and Related Products (for Roadmaking) under the direction of the Chemical Standards Board.

The Committee recognized the need for a separate Standard for the use of cutter oil and flux oil to complement existing Standards dealing with bituminous works.

This Standard is applicable to people involved in roadmaking, for both sprayed work and for classification of oils used in the preparation of bituminous cold mix and fluxed asphalt.

CONTENTS

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Oils for reducing the viscosity of residual bitumen for pavements

1 SCOPE. This specification applies to hydrocarbon oils derived from refining crude oil to be used for reducing the viscosity of bitumen in sprayed work and in the preparation of bituminous cold mixes and fluxed asphalt.

2 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

AS	
2106	Methods for the determination of the flash point of flammable liquids (closed cup)
2341	Methods of testing bitumen and related roadmaking products
2341.9	Method 9: Determination of water content (Dean and Stark)
ASTM	
D86	Method for distillation of petroleum products
D93	Test methods for flash point by Pensky-Martens closed tester
D95	Test method for water in petroleum products and bituminous materials by distillation
D97	Test methods for pour point of petroleum oils
D445	Test method for kinematic viscosity of transparent and opaque liquids (and the calculation of dynamic viscosity)
D473	Test method for sediment in crude oils and fuel oils by the extraction method
D611	Test method for aniline point and mixed aniline point of petroleum products and hydrocarbon solvents
D1298	Test method for density, relative density (specific gravity), or API gravity of crude petroleum and liquid petroleum products by hydrometer method
D1319	Test method for hydrocarbon types in liquid petroleum products by fluorescent indicator adsorption
D1552	Test method for sulfur in petroleum products (high-temperature method)

3 DEFINITIONS. For the purpose of this Standard the definitions below apply.

3.1 Cold mix—a mixture of bituminous binder and aggregate, with or without added mineral filler, produced warm or cold in a mixing plant, and delivered in a workable condition suitable for stockpiling, and spreading and compaction.

3.2 Cutter oil—a light petroleum distillate added to bitumen to temporarily reduce its viscosity.

3.3 Flux oil—a petroleum distillate used to produce a long-term reduction in viscosity of a binder.

3.4 Heavy flux oil—a petroleum residue used to produce a long-term reduction in viscosity of a binder.

3.5 Residual bitumen—bituminous material obtained by processing the residue from the refining of naturally occurring crude oil.

3.6 Sprayed work—comprises priming, primer-sealing and sealing of prepared surfaces using bituminous binders which may contain oils for reducing their viscosity.

4 PROPERTIES.

4.1 General. Properties of the oils, when determined in accordance with the methods of test prescribed in Table 1 shall comply with the requirements specified therein. A heavy flux oil is also available and its properties shall comply with the requirements given in Table 2.

4.2 Cleanliness and fluidity. The oil shall be clean and free of particulate matter. It shall be liquid at the prevailing temperature at the point of use.

4.3 Miscibility. The oil shall be compatible with bitumen so that when one (1) part by volume of the oil at ambient temperature is mixed with one (1) part by volume of bitumen at a temperature of 80 °C, and the mixture is allowed to cool to ambient temperature, it shall not separate after standing for one hour.

5 SAMPLING.

5.1 General. The purchaser should sample and test the oil at his discretion, either prior to its despatch from the source of supply or subsequent to its delivery, or both. Representative samples shall be taken by the supplier in the presence of the purchaser's representative.

The viscosity of each of the samples may be determined in order to detect stratification.

5.2 Sample containers. Containers for bitumen or cutback samples shall be clean, dry, double-tight, friction-top cans of 1 L capacity unless otherwise specified by the purchaser.

Containers for volatile diluent samples shall be appropriate to the consistency and volatility of the material.

5.3 Sampling from drums. A number of drums shall be selected at random, the number to be approximately equivalent to, but not less than, the cube root of the total number of drums in the lot.

Agitate each drum from which a sample is to be taken unless stratification is suspected, in which case, it should be sampled in layers. From each drum a sample of not less than 100 mL shall be taken from at least 100 mm below the surface and at least 100 mm from the side of the drum.